

Notice of Allowability

Application No.

10/757,926

Examiner

Leon Flores

Applicant(s)

TRACHEWSKY ET AL.

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/3/2007.
2. ☒ The allowed claim(s) is/are 1-11, 17, 20 and 24-26.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


DAVID C. PAYNE
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Kevin L. Smith on 9/20/2007.

The application has been amended according to the faxed claims (copy attached), sent to the examiner by Mr. Kevin L. Smith (Reg. No. 38,620) on 9/6/2007.

In the claims:

Claim 20, line 1, 'The RFIC of claim 18' has been changed to ---The RFIC of claim 17---.

Allowable Subject Matter

2. Claims (1-11, 17, 20, and 24-26) are allowed.

3. The following is an examiner's statement of reasons for allowance: The art of record does not suggest the respective⁴ claim combinations together and nor would the respective claim combinations be obvious with:

4. Re claim 1, the further limitation of, *"a radio frequency integrated circuit (RFIC) comprises: transmitter section operably coupled to convert outbound baseband signals into outbound radio frequency (RF) signals; receiver section operably coupled to convert inbound RF signals into inbound baseband signals, wherein the receiver section*

includes: a low noise amplifier operably coupled to amplify the inbound RF signals to produce amplified inbound RF signals; down-conversion module operably coupled to convert the amplified inbound RF signals into baseband in-phase components and quadrature components; orthogonal-normalizing module operably coupled to: obtain a first coefficient that is based on at least one of power of the baseband in-phase components, power of the baseband quadrature components, and cross-correlation between the baseband in-phase components and the baseband quadrature components; obtain a second coefficient that is based on at least one of the power of the baseband in-phase components, the power of the baseband quadrature components, and the cross-correlation between the baseband in-phase components and the baseband quadrature components; normalize an orthogonal relationship between the baseband in-phase components and the baseband quadrature components based on the first coefficient and the second coefficient to produce normalized in-phase components and normalized quadrature components; and baseband processor operably coupled to recapture data from the normalized in-phase and quadrature components". Claims 2-11 depend on claim 1.

5. Re claim 17, the further limitation of, "a radio frequency integrated circuit (RFIC) comprises: receiver section operably coupled to convert inbound radio frequency (RF) signals into inbound baseband signals; transmitter section operably coupled to convert outbound data into outbound RF signals, wherein the transmitter section includes: baseband processor operably coupled to convert the outbound data into the baseband in- phase components and baseband quadrature components; orthogonal-normalizing

module operably coupled to: obtain a first coefficient that is based on at least one of a gain imbalance and phase imbalance; obtain a second coefficient that is based on at least one of the gain imbalance and the phase imbalance; normalize an orthogonal relationship between the baseband in-phase components and the baseband quadrature components based on the first coefficient and the second coefficient to produce normalized in-phase components and normalized quadrature components; up-conversion module operably coupled to convert the normalized in-phase components and normalized quadrature components into RF signals; and power amplifier operably coupled to amplify the RF signals to produce the outbound RF signal; wherein the orthogonal-normalizing module comprises: a first multiplier module operably coupled to multiply the baseband in-phase components with the first coefficient to produce the normalized in-phase components; wherein the first multiplier module comprises: a first plurality of shift registers operably coupled to produce a plurality of shifted representations of the baseband in-phase components; switch matrix operably coupled to pass selected ones of the plurality of shifted representations of the baseband in-phase components and the baseband in-phase components based on the first coefficient; and an adder operably coupled to add the selected ones of the plurality of shifted representations of the baseband in-phase components and the baseband in-phase components to produce the normalized in-phase components; a second multiplier module operably coupled to multiply the baseband in-phase components with the second coefficient to produce cross coupled in-phase components; and a subtraction module operably coupled to subtract the cross coupled in-phase

components from the baseband quadrature components to produce the normalized quadrature components". Claims 20 and 24-26 depend on claim 17 above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Flores whose telephone number is 571-270-1201. The examiner can normally be reached on Mon-Fri 7-5pm Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LF
September 10, 2007



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